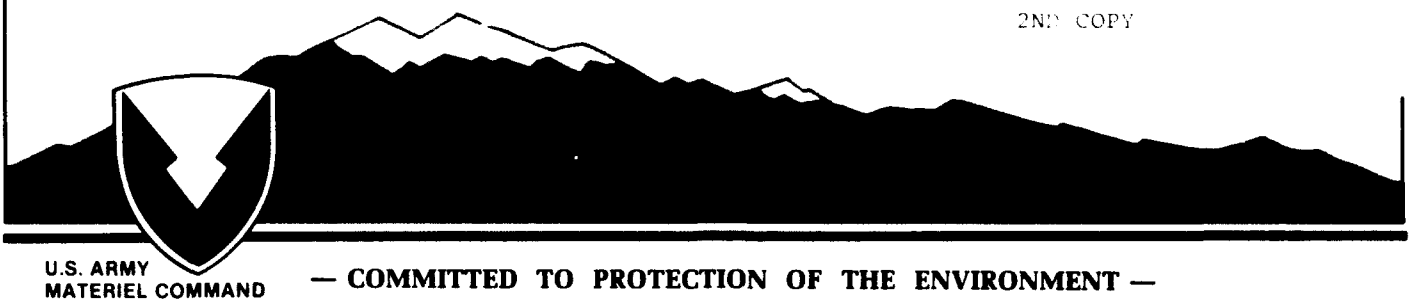

U.S. ARMY
MATERIEL COMMAND

— COMMITTED TO PROTECTION OF THE ENVIRONMENT —

Final Decision Document for the Interim Response Action for Building 1727 Sump at Rocky Mountain Arsenal

December 1988

Prepared for:

U.S. Army Program Manager's Office For
Rocky Mountain Arsenal Contamination Cleanup

ROCKY MOUNTAIN ARSENAL • COMMERCE CITY, COLORADO • 80022-2180

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THIS INTERIM RESPONSE ACTION WILL CONSIST OF THE TREATMENT AND DISPOSAL OF WASTEWATER FROM BLD1727 SUMP TO MITIGATE 1) ANY FUTURE RELEASE OF CONTAMINATED WATER AND 2) THE POTENTIAL ADVERSE AFFECTS ASSOCIATED WITH A RELEASE OF CONTAMINATED WATER. IN ADDITION, THIS IRA WILL REDUCE THE MOBILITY, TOXICITY, AND VOLUME OF CONTAMINATED WATER IN THE SUMP.

THIS FINAL DECISION DOCUMENT PROVIDES SUMMARIES OF:

1. ALTERNATIVES CONSIDERED
2. SIGNIFICANT EVENTS LEADING TO THE INITIATION OF THE IRA
3. THE IRA PROJECT
4. THE APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS, STANDARDS, CRITERIA, OR LIMITATIONS (ARAR'S) ASSOCIATED WITH THE PROGRAM.

THE PREFERRED ACTION IS TO PUMP AND TREAT WITH EXISTING ACTIVATED ALUMINA/GRANULAR ACTIVATED CARBON TREATMENT SYSTEM.

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FINAL DECISION DOCUMENT FOR THE INTERIM RESPONSE ACTION FOR BUILDING 1727 SUMP AT ROCKY MOUNTAIN ARSENAL

1.0 INTRODUCTION

The Interim Response Action (IRA) for Building 1727 Sump at the Rocky Mountain Arsenal (RMA) is being conducted as part of the IRA Process for RMA in accordance with the June 5, 1987 report to the court in United States v. Shell Oil Co. and the proposed Consent Decree.

This IRA project will consist of the treatment and disposal of wastewater from Building 1727 Sump to mitigate any future release of contaminated water and the potential adverse affects associated with a release of contaminated water. This IRA shall, to the maximum extent possible, treat or remove wastewater to levels that will be protective of human health and the environment associated with the contaminants of concern. In addition, this IRA will reduce the mobility, toxicity, and volume of contaminated water in the sump.

2.0 HISTORY OF BUILDING 1727 SUMP

Rocky Mountain Arsenal was developed when the United States Government bought 17,000 acres (approximately 27 square miles) of land in Adams County, Colorado (Figure 1) in 1942. Its primary function was to manufacture and assemble chemical warfare materials (i.e., mustard and lewisite), and incendiary munitions for use in World War II.

Industrial chemicals were produced at RMA from 1947 to 1982. The North Plant Facility (Figure 2) was constructed between 1950 and 1953 to manufacture the nerve agent GB (isopropyl methylphosphonofluoridate). Production of GB ended in 1957, but GB munitions filling operations continued until late 1969. Between 1970 and 1982, the mission of RMA concentrated on the destruction of chemical warfare materials. From 1946 to 1982, a major portion of the plant was also leased to private industries (including Shell Chemical Company) for the manufacture of various insecticides and herbicides.

All liquid waste generated in the North Plant Facility from 1953 to 1973 was discharged to Sump 1727 (Figure 3). The liquid waste was neutralized with caustic solution and water, and later discharged to either of two wastewater evaporation lagoons near the center of RMA, Basin A and Basin F. From 1973 to 1976, contaminated sump waste was discharged to a spray-drying facility adjoining Building 1703, while non-contaminated sump waste was discharged to Basin F. After 1976, however, all wastes collected in the sump were disposed in the spray-drying facility. The discharge pipeline to Basin F was capped in 1982; spray-drying was discontinued in 1985.

In December 1982, a Memorandum of Agreement (MOA) was entered into between the Colorado Department of Health, the U.S. Environmental Protection Agency, Shell Chemical Company, and the

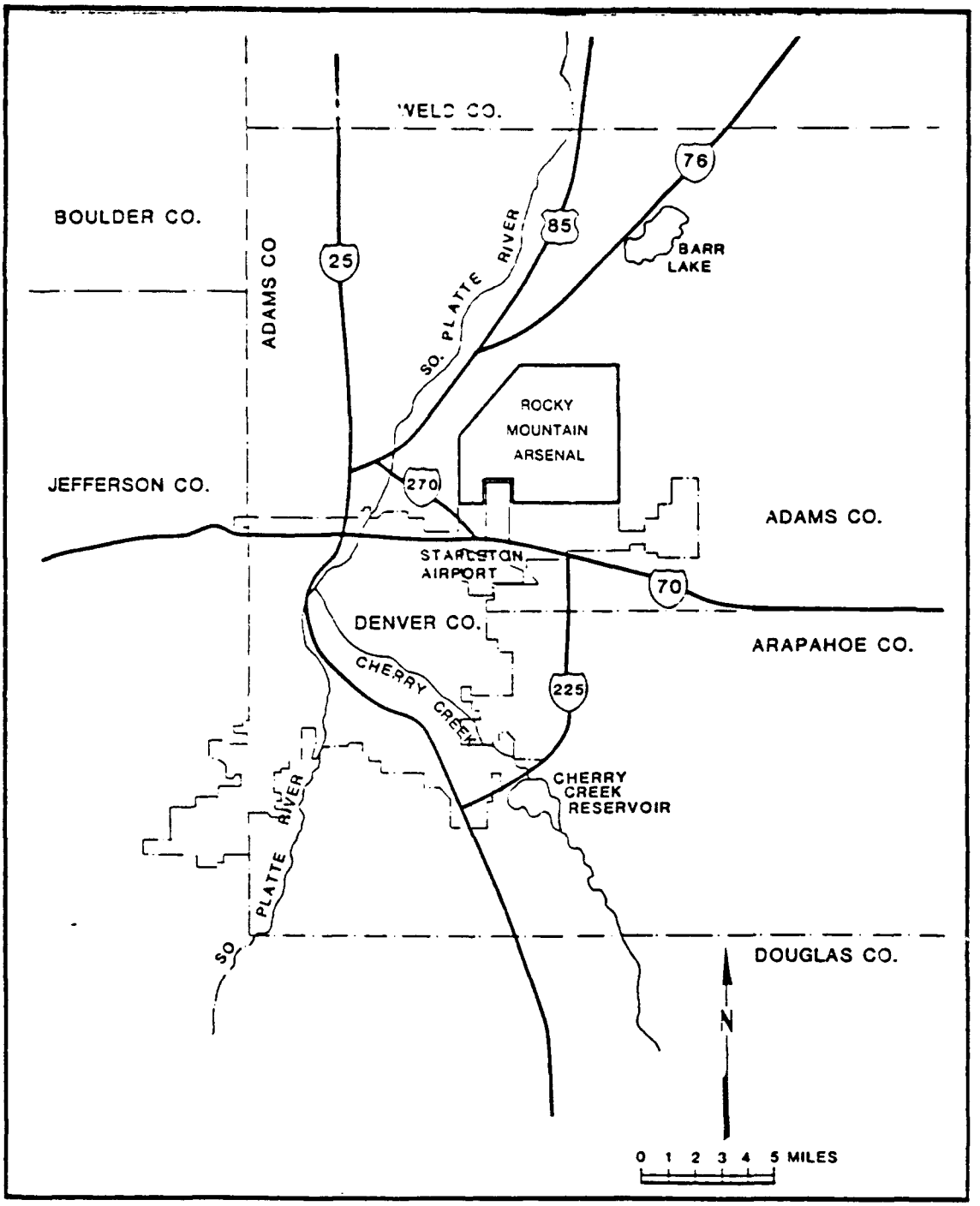

FIGURE 1
ROCKY MOUNTAIN ARSENAL LOCATION

Source: Sump 1727, Interim Response Action Alternatives Assessment, Final Report, July 1988

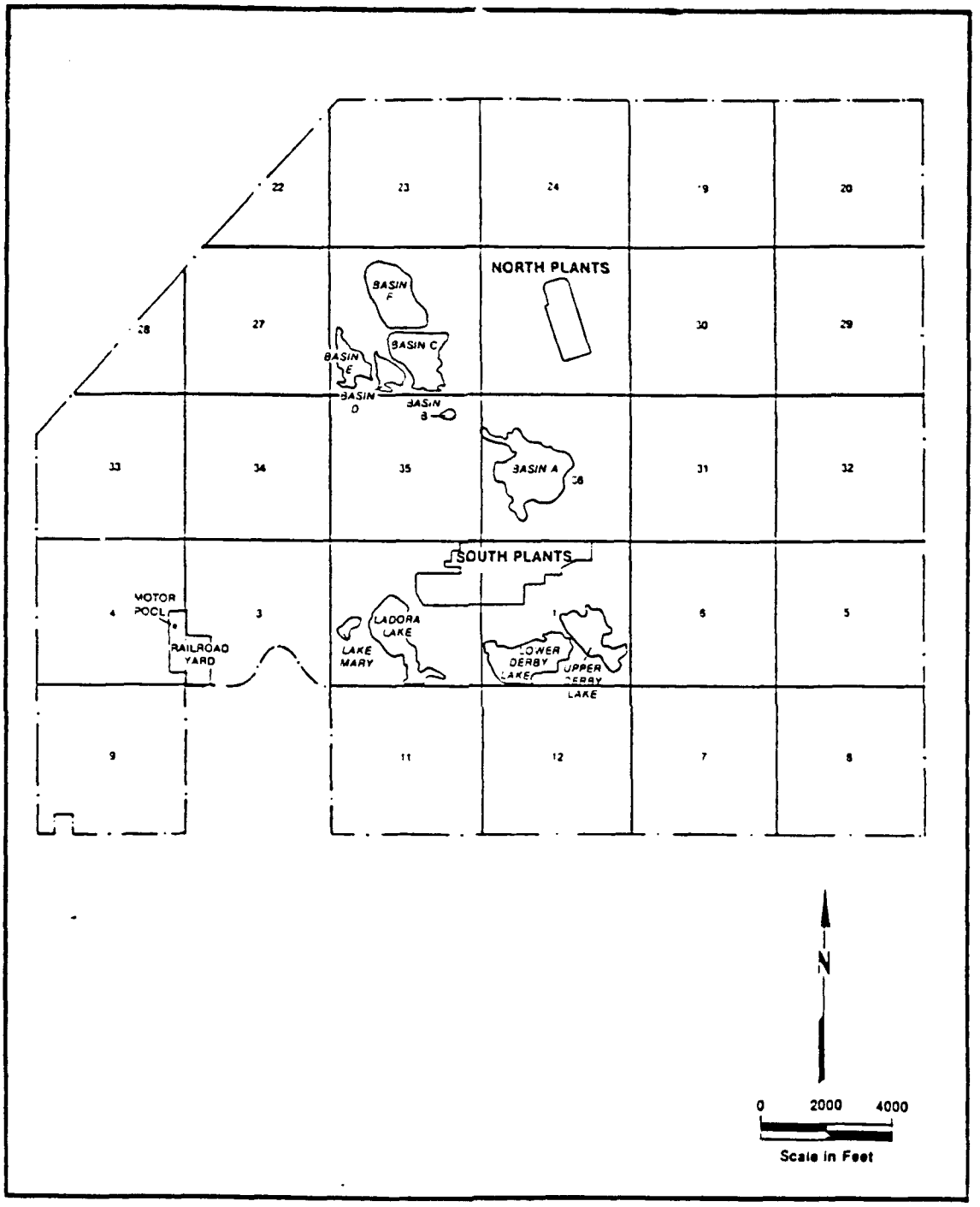

FIGURE 2
ROCKY MOUNTAIN ARSENAL SITE

Source: Sump 1727, Interim Response Action Alternatives Assessment, Final Report, July 1988

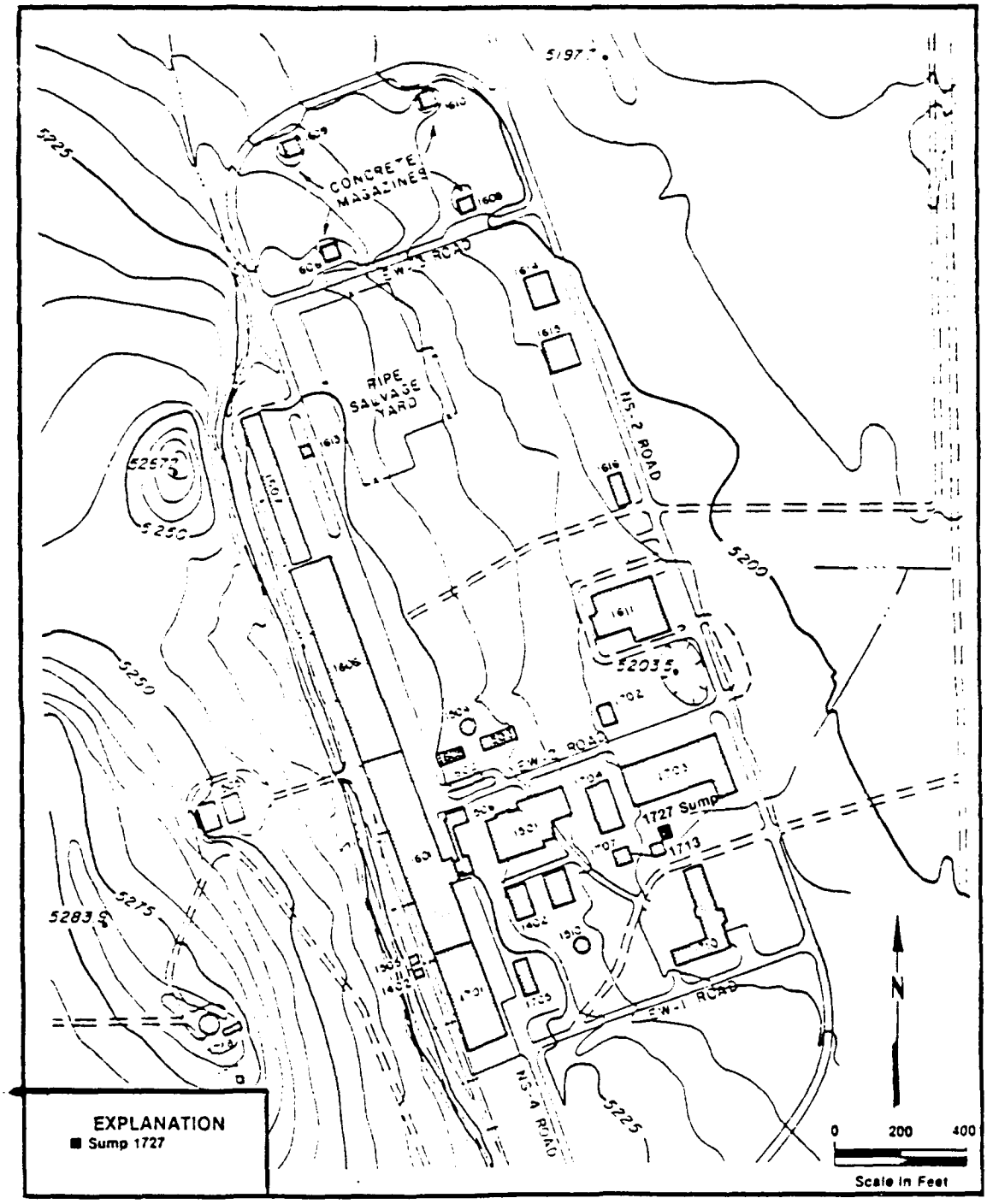

FIGURE 3
SUMP 1727 LOCATION

Source: Sump 1727, Interim Response Action Alternatives Assessment, Final Report, July 1988

Army. The MOA initiated a cooperative development plan for a comprehensive remedy for the environmental situation at RMA.

A source control study conducted by U.S. Army Toxic and Hazardous Materials Agency (USATHAMA) over a three-year period resulted in submission of a final report to the MOA parties in September 1983. That report identified several remedial actions necessary to facilitate the restoration of RMA.

Sump 1727 was designed to handle the liquid waste generated within the North Plants facility. The main sources of wastewater collecting in the sump were floor washdowns, spill neutralizations/flushings, and stormwater runoff from diked storage areas. However, North plant Facility operations ceased in 1985. Despite the cessation of operations, water has continued to collect in Sump 1727. Suspected sources of inflow are leakage of water lines, possible groundwater infiltration, and inflow of stormwater runoff in the North Plants area. In January 1987, underground potable water lines outside of Building 1501 broke as a result of freezing temperatures. The water that leaked into the basement was subsequently pumped into Sump 1727, nearly filling it. In an emergency response to the near overflow condition of the sump throughout the year, over 50,000 gallons of water were pumped from the sump to tanks and tanker trailers. Although integrity of the entire sump has not been verified, internal walls that were inspected appeared to be in good condition with no indications of seepage from the sump.

Analytical tests of the sump water taken in February 1987 indicated that the water was contaminated with arsenic (As), cadmium (Cd), fluoride (F), lead (Pb), and isopropylmethyl-phosphonate (IMPA). Water quality tests from upstream water sources showed low concentrations of As, F, and IMPA; and Cd and Pb were not detected. It is suspected that upstream water is being contaminated by sediments and sludges in the sump. During

October and November of 1987, an emergency response system consisting of an activated alumina and carbon adsorption treatment system was installed. The treated effluent is being discharged to the RMA sanitary wastewater treatment system.

On February 1, 1988, a proposed Consent Decree was lodged in the U.S. v. Shell Oil Company with the U.S. District Court in Denver, Colorado. The Proposed Decree was commented upon by interested parties and modified in response to comments received. A modified proposed decree was submitted to the Court on June 7, 1988. The Army and Shell Oil Company agreed that IRAs were necessary and appropriate to clean-up RMA. These were to be developed and performed with the oversight of the U.S. Environmental Protection Agency and with numerous opportunities for review and comment by the State of Colorado. The long-term cleanup is a complex task that will take several years to complete. To alleviate the most urgent problems, the Consent Decree specifies a number of interim response actions. One of these interim response actions is to remediate contaminated liquid in Sump 1727.

3.0 INTERIM RESPONSE ACTION OBJECTIVES

The objective of this IRA is to treat the contaminated liquid in Sump 1727 (to include the adjacent valve pit) and to control any remaining threat of contaminated liquid being released to the environment. The treatment of wastewater from Sump 1727 will follow these specific criteria:

- Treat or remove wastewater to levels that will effectively eliminate hazards to human health and the environment associated with the contaminants of concern.
- Mitigate the threat of a release of contaminated liquid.
- Insure treatment technology is technically feasible.
- Reduce the toxicity, mobility, and volume of wastewater.
- Comply with designated Applicable or Relevant and Appropriate Requirements to the maximum extent practicable.
- Minimize cost (for alternatives affording equivalent levels of protection).
- Use technology which can be implemented in a timely manner.

This decision document provides a summary of the alternative technologies considered, a chronology of the significant events leading to the initiation of the IRA, a summary of the IRA project, and a summary of the Applicable, or Relevant and Appropriate Requirements, standards, criteria, or limitations (ARARs) associated with the program.

4.0 INTERIM RESPONSE ACTION ALTERNATIVES

The Final Report, entitled Interim Response Action Alternatives Assessment, Version 3.2 (Environmental Science and Engineering, Inc., July 1988), examines the proposed options for Sump 1727.

"No Action" and six other alternatives were studied as methods to reduce mobility, toxicity, or volume of contaminated water in the sump. These alternatives were evaluated based upon factors listed in Section 9.6 of the proposed Consent Decree lodged with the court in U.S. v. Shell.

- Alternative 1: Pump and treat with existing activated alumina (AA)/granular activated carbon (GAC) treatment system
- Alternative 2: Evaporation pond
- Alternative 3: Identify and eliminate known sources and pump and treat with existing AA/GAC treatment system
- Alternative 4: Decommission sump and associated lines and pump and treat with existing AA/GAC treatment system
- Alternative 5: Construct a new sump and pump and treat with existing AA/GAC treatment system
- Alternative 6: Retrofit existing sump and pump and treat with existing AA/GAC treatment system
- Alternative 7: Direct discharge to surface waterways (No Action).

4.1 PUMP AND TREAT WITH EXISTING AA/GAC TREATMENT SYSTEM

This treatment will use the AA/GAC treatment system that was installed during October and November of 1987. This system consists of an untreated sump water holding tank, a pH controlling system, two treatment trains (each contains a pump,

filters, two AA treatment units and a GAC unit). The total system presently treats four (4) to five (5) gallons of water per minute (two (2) to three (3) gallons of water per minute per treatment train). However, the system will be capable of expanded capacity up to 20 gallons per minute, if necessary. Discharge from this system would be:

- To surface waterways,
- To the sanitary sewage treatment system, or
- To the South Plants Treatment System.

Toxicity, mobility, and volume of both the contaminants and wastewater will be reduced by this alternative. Toxicity will be reduced by the removal of As, F, IMPA, and other organics from sump water. Cadmium and Lead will also be removed by the system. This alternative will prevent the release of contaminated water from the sump, thus reducing the mobility of contaminants. AA/GAC adsorption of the water contaminants will decrease the volume of contaminated water. The AA/GAC residues have been determined to be non-hazardous. However, it was decided that the residue will be treated as hazardous and thereby disposed in accordance with hazardous waste disposal regulations.

Alternative 1 would reduce toxicity, mobility, and volume of both the contaminants and wastewater; however, it would not identify or eliminate the source of inflow to the sump.

4.2 EVAPORATION POND

This treatment alternative would pump water from Sump 1727 to an evaporation pond. A 112,000 gallon maximum capacity pond would be constructed approximately 200 feet southeast of Sump 1727 and east of Building 1710. The surface area available to evaporate water would be approximately 3,600 square feet which would be capable of evaporating 108,000 gallons of water per year based on a total annual evaporation of 48 inches per year.

Mobility and volume of the wastewater will be reduced by this alternative. Mobility will be decreased by providing a secondary containment unit. However, the actual toxicity and volume of the contaminants will not be affected by evaporation. This level of treatment is not considered consistent with SARA's guidance concerning reduction of mobility, toxicity and volume. Evaporation will serve only to reduce the volume of water and will not reduce its toxicity.

Contaminated residue generated by this process will be drummed and stored for final remediation. Alternative 2 would not identify, reduce or remove the sources of contaminated water.

4.3 IDENTIFY AND ELIMINATE KNOWN SOURCES AND PUMP AND TREAT WITH EXISTING AA/GAC TREATMENT SYSTEM

This alternative would use a three phase approach to identify and stop the contribution of contaminants from sources that are contributing the most volume of water to Sump 1727. Phase I would treat existing water in the sump and associated sources with the existing AA/GAC treatment system, identify potential inflow locations and determine the consequences of capping these sources. Phase II would chemically characterize the sources of inflow to the sump. Phase III would be the pumping and treatment of the wastewater with the existing AA/GAC treatment system.

Sealing off the uncontaminated sources will reduce the amount of water entering the sump, thus making the sump less prone to overflow. This alternative only address the removal of sources to the Sump, it does not address the toxicity of the water which will continue to accumulate at the sources. Mobility (i.e., overflow and seepage) from the sump would not be resolved by this alternative.

4.4 DECOMMISSION SUMP AND ASSOCIATED LINES AND PUMP AND TREAT WITH EXISTING AA/GAC TREATMENT SYSTEM

This alternative would identify and eliminate the sources of water flowing into Sump 1727. The suspected sources are floor drains in basements and storm water runoff from diked areas. This alternative would use a three phase approach to identify and stop the contribution of contaminants from sources that are contributing the most volume of water to Sump 1727. Phase I would treat existing water in the sump and associated sources with the existing AA/GAC treatment system, identify potential inflow locations, and determine the consequences of capping these sources. Phase II would chemically characterize the sources of inflow to the sump, which create problems when isolated from the site, to determine future actions of the source. Phase III would be the elimination of these sources, treatment with existing AA/GAC treatment system for accumulating water at these sources, and the decommissioning of the sump and associated pipelines.

This alternative removes a contaminant storage area, thus preventing the sump from contributing contaminants. Sealing off the uncontaminated sources will stop water from entering the sump. By isolating the sump from potential sources, the volume of water entering the sump will be eliminated. This alternative would address the toxicity of the water accumulating at the sources.

4.5 CONSTRUCT A NEW SUMP AND PUMP AND TREAT WITH EXISTING AA/GAC TREATMENT SYSTEM

Replacing the existing sump and installing a new six-inch diameter, polyvinyl chloride (PVC) influent sewer is the scenario for this alternative. The new sump would be identical to the existing system, except it will not be able to discharge to the

spray dryer. Construction of a new sump and pipelines will allow long-term use for the final remediation.

This alternative would reduce the potential for contamination by ensuring that contaminated water is not seeping from the sump walls or flowing from broken pipes. The toxicity and volume of the contaminated water would be addressed by treatment at the existing AA/GAC Treatment System.

This alternative would be implemented in two phases. Phase I would identify and locate sources of inflow to the sump and would identify the consequences generated by pipeline replacement (i.e., buildup of water in affected buildings) to these sources. Phase II would be the replacement of the sump and the pipelines. During construction contaminated water from the sump and sources would be treated in the existing AA/GAC Treatment System.

4.6 RETROFIT EXISTING SUMP AND PUMP AND TREAT WITH EXISTING AA/GAC TREATMENT SYSTEM

This alternative would use a three phase approach. During all three phases water from the sump and sources would be treated in the AA/GAC Treatment System. Implementation of Phase I would determine the condition of the sump and whether it is feasible to retrofit the existing sump. The completion of Phase II would repair and reinforce the walls of the sump. Phase III would be the installation of a high density polyethylene (HDPE) liner in the sump.

Implementation of this alternative would prevent contaminated water from seeping into the surrounding area it prevents the possibility of overflow from the sump and reduces the toxicity of the waste water.

4.7 DIRECT DISCHARGE TO SURFACE WATERWAYS

This alternative would be direct discharge of contaminants to surface waterways and is considered to be the "No Action" alternative. It would not address mobility, toxicity or volume reduction. Water would continue to accumulate and overflow from the sump. The contaminated water would spill into an adjacent ditch and most of the contaminants and water would be absorbed into the soil. Continuation of this alternative does not meet the objectives of this IRA.

4.8 TREATMENT ALTERNATIVE EVALUATION

The emergency AA/GAC treatment system now in operation has achieved the proposed effluent levels for arsenic, cadmium, lead, IMPA, and fluoride. Alternative 1 incorporates the existing AA/GAC treatment system. This alternative meets all objectives of the IRA, and when compared with all other alternatives it can be implemented in the shortest time and at the lowest cost. The integrity of the existing sump has been preliminarily evaluated during sediment removal and no deficiencies have been identified. A further, more detailed, evaluation is being conducted and if any deficiencies are noted during this evaluation, the response action will be appropriately modified. Alternative 1 is the recommended and the preferred alternative.

5.0 CHRONOLOGY OF EVENTS/COORDINATION WITH THE ORGANIZATIONS AND THE STATE

DATE	EVENT
January 1987	Underground potable water lines broke due to freezing temperatures. Water which collected in the basement of Building 1501 was subsequently pumped to Sump 1727. Over 60,000 gallons of water were pumped to nearby tanks to alleviate the near overflow condition of the sump. As a result of the break, all process, potable, and fire protection water was shut off to the North Plant Facility.
February 1987	Analysis of sump water showed elevated levels of arsenic (As), cadmium (Cd), lead (Pb), fluoride (F), and isopropylmethyl-phosphonate (IMPA).
February to April 1987	Monitoring of sump water showed gradual changes in concentration levels. Analytical results showed elevated levels of As, F, and IMPA, and a high pH; but Pb and Cd levels had gradually decreased.
March to September 1987	Contractor for RMA pumps sump water to storage tanks to prevent overflow of the sump.
May 1987	Pilot testing of activated alumina adsorption and electrochemical precipitation.

May 21, 1987	Letter informing all parties that emergency response was in progress is being initiated.
June 5, 1987	United States Report to Court describes scope of IRA
June 16, 1987	All parties briefed on problems at Building 1727 Sump.
August 6, 1987	Draft Final Treatability Study, Building 1727 Sump Interim Response Action Assessment, completed by Environmental Science and Engineering, Inc. and transmitted to EPA, CDH, and Shell.
September 1987	Letter informing all parties that AA/GAC treatment system would begin.
October to November 1987	An emergency response system, consisting of a small activated alumina unit and a granulated activated carbon unit, was installed.
December 1987	The activated alumina/granulated activated carbon unit began operation.
February 1, 1988	Proposed Consent Decree lodged in the U.S. v. Shell Oil Company with the U.S. District Court in Denver, Colorado. The Consent Decree specified a number of interim actions, including remediating contaminated liquid in Building 1727 Sump to mitigate any remaining threat of release of liquids from this sump.

May 12, 1988	Draft Final Report, Sump 1727 Interim Response Action Alternatives Assessment, Version 2.3, completed by Environmental Science and Engineering, Inc.
May 12, 1988	Draft ARARs released to parties under separate cover.
June 6, 1988	Comments received from the Department of Interior Fish & Wildlife Commission on Draft ARARs.
June 7, 1988	Modified Proposed Consent Decree lodged with Court after public comments evaluated.
June 9, 1988	Comments received from CDH on Draft Final Report, Sump 1727 Interim Response Action Alternatives Assessment.
June 13, 1988	Comments received from EPA on Draft ARARs.
June 17, 1988	Late comments received from CDH on Draft Final Report, Sump 1727 Interim Response Action Alternatives Assessment and on Draft ARARS.
June 18, 1988	Late comments received from Shell on Draft Final Report, Sump 1727 Interim Response Action Alternatives Assessment.
August 1, 1988	Final Report, Sump 1727 Interim Response Action Alternatives Assessment transmitted by Program Manager RMA to Organizations and the State.

6.0 SUMMARY OF THE INTERIM RESPONSE ACTION PROJECT

Analysis of the water data shows that the sump sediments are the likely source of contamination. The Army plans to remove the sump sediments prior to the implementation of the IRA. Estimated schedule for removal of sediments is to begin and be completed in September 1988. Once the sump is emptied, a field inspection will be conducted to verify the interior walls are in good condition. Prior to completion of the selection process for this interim response action, the parties orally agreed to have the Army proceed to remove sediments from the sump.

Alternative 1 (Pump and treat with existing AA/GAC treatment system) meets all objectives of the IRA and can be implemented in the shortest time and at the lowest cost; and is, therefore, the preferred alternative. In addition, the emergency AA/GAC system (predecessor of Alternative 1) now in operation has achieved the proposed effluent levels for the following contaminants of concern: arsenic (50 ug/l), cadmium (10 ug/l), lead (50 ug/l), and fluoride (4,000 ug/l). These effluent limits are equivalent to the maximum contaminant levels (MCL) in 40 CFR 141.11. The system also has achieved the health-based level for IMPA (16.8 ppm), presently identified by the Army.

This system has demonstrated itself to be technically feasible, protective of human health by attaining selected treatment levels, to mitigate the threat to human health and the environment by reducing the volume of contaminated liquids in the sump which could overflow to the surrounding area, to be a timely treatment method and to be cost effective.

The AA/GAC system consists of a pH adjust system, an activated alumina system, and a granular activated carbon system. The pH of the sump water is adjusted to 5.5 by the pH adjust unit. Positive displacement pumps discharge the pH adjusted water to

one or more parallel activated alumina columns. Following the activated alumina columns are the granular activated carbon treatment units operated in series. If arsenic and fluoride are below MCL then the waste is discharged to the sewer; however, if the MCL are exceeded the waste is recycled to the sump for retreatment through the system.

6.1 HEALTH AND SAFETY PLAN

A health and safety plan has been developed for the prevention of occupational injuries and illnesses during field activities at RMA. This plan addresses health and safety requirements of contractors and their authorized subcontractors. Compliance with this plan will be compulsory and the contractors will be responsible for self-enforcement and compliance. The health and safety plan was developed with consideration of known hazards as well as potential risks. Comprehensive environmental monitoring and site-specific personal protection are combined in an effort to best protect workers.

A site-specific health and safety plan for work to be performed on the Building 1727 Sump will be developed and included with the Implementation Document.

7.0 IRA PROCESS

For the Building 1727 Sump IRA, the interim response action process is as follows:

1. The scope of the IRA was described in the June 5, 1987 report to the Court of the United States (the Army and EPA), Shell and the State in United States v. Shell Oil Co. The Scope was similarly described in the proposed Consent Decree.

2. EPA, Shell, and the State of Colorado were afforded an opportunity to identify, on a preliminary basis, any potentially applicable or relevant and appropriate Federal or State standards, requirements, limitations and criteria (ARARs).

3. The Army then prepared a draft final Building 1727 Sump IRA assessment and a draft of the ARARs document that was submitted to the other organizations, the State, and the DOI for review and comment. Comments were to be submitted up to 30 days after receipt of the draft final assessment. Promptly after the close of the comment period, the Army transmitted a final assessment to the DOI, the State, and other organizations.

4. The Army issued a proposed Building 1727 Sump Decision Document for a 30-day public comment period. Approximately two weeks into the 30-day comment period, a public meeting will beheld in Denver, CO. The proposed decision document is also supported by an Administrative Record.

5. Promptly after the close of the comment period, the Army shall transmit to the DOI, the State, and other organizations a draft final Building 1727 Sump IRA Decision Document.

6. Within 20 days of issuance of the draft final Building 1727 Sump IRA Decision Document, an organization (or DOI where appropriate) may invoke Dispute Resolution.

7. After the close of the period for invoking Dispute Resolution (if Dispute Resolution is not invoked) or after the completion of Dispute Resolution (if invoked), the Army shall issue a final Building 1727 Sump IRA Decision Document to the DOI, the State, and other organizations, and shall notify the public of the availability of the final Building 1727 Sump Decision Document with the supporting administrative record. Only preliminary design work for the IRA may be conducted prior to issuance of the final Building 1727 Sump IRA Decision Document.

8. Thereafter, the Building 1727 Sump IRA Decision Document will be subject to judicial review in accordance with Sections 113 and 121 of the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) of 1980, as amended, 42 U.S.C. Sections 9613 and 9621.

9. During this IRA process, emergency treatment of sump liquids is continuing.

8.0 ARARs

8.1 ATTAINMENT OF ARARs

The interim action process reported to the Court on June 5, 1987, in United States v. Shell Oil Co. provides that the IRAs (including this IRA to mitigate any potential threat of release of liquids in the 1727 Sump) shall, to the maximum extent practicable, attain ARARs. A similar provision appears in Paragraph 9.7 of the proposed Consent Decree.

8.2 IDENTIFICATION AND SELECTION OF ARARs

Paragraph 9.7 of the proposed Consent Decree provides that the Organizations, DOI and the State shall have an opportunity to participate at the RMA Committee level in the identification and selection of ARARs that may be applicable to the IRAs. The Army is to present its proposed decision on ARARs to the other Organizations, DOI and the State prior to, or as part of, the draft IRA Assessment.

In this instance, the Army requested in a January 19, 1988 letter by counsel that EPA, Shell and the State nominate by February 19, 1988 any ARARs that they believed warranted initial consideration by the Army in connection with this IRA. No responses were received to this letter.

Draft ARARs were provided to the parties by the Army on May 12, 1988 for review and comment. Department of Interior provided comments on June 6, 1988 and EPA provided comments on June 13, 1988. Colorado provided comments on June 17, 1988.

8.3 SELECTION OF ARARs AND DETERMINATION OF ARAR IMPACT

8.3.1 AMBIENT OR CHEMICAL-SPECIFIC ARARs

Ambient or chemical-specific requirements set health or risk-based concentration limits or ranges in various environmental media for specific hazardous substances, pollutants or contaminants. Such ARARs either set protective cleanup levels for the chemicals of concern in the designated media or indicate an appropriate level of discharge.

The purpose of this IRA is to reduce at the earliest possible time the toxicity and volume of contaminated water in the Building 1727 Sump. This IRA will be implemented prior to the final remediation to be undertaken in the context of the On-Post Operable Unit ROD.

For this IRA, the Army has selected an existing "off-the-shelf" technology for interim remediation of the 1727 Sump, consistent with the IRA emphasis on speed of implementation, which the Army fully anticipates will also achieve, at the point of discharge of the treated sump water, the following identified standards, requirements, criteria or limitations that are relevant and appropriate under the circumstances of the potential release for the CERCLA hazardous substances[1] specified below:

(1) Arsenic

(a) CERCLA Hazardous Substance: Yes.

(b) Ground Water RI Analyte: Yes.

(c) Surface Water RI Analyte: Yes.

(d) Ground Water IRA Standard: 50 ug/l.
(Source: 40 C.F.R. 141.11(b) (NPDW -- MCL) and 40 C.F.R. 264.94(a)(2) (RCRA).)

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[1]Although fluoride is not a CERCLA hazardous substance, this IRA will meet the MCL for fluoride, i.e., 4000 ug/l. (Source: 40 C.F.R. 141.11(c) and 141.62(b).)

(e) Surface WAter IRA Standard: 50 ug/l.
(Source: 40 C.F.R. 141.11(b) (NPDW -- MCL) and 40 C.F.R. 264.94(a)(2) (RCRA).)

(2) Cadmium

(a) CERCLA Hazardous Substance: Yes.
(b) Ground Water RI Analyte: Yes.
(c) Surface Water RI Analyte: Yes.
(d) Ground Water IRA Standard: 10 ug/l.
(Source: 40 C.F.R. 141.11(b) (NPDW -- MCL) and 40 C.F.R. 264.94(a)(2) (RCRA).)
(e) Surface WAter IRA Standard: 10 ug/l.
(Source: 40 C.F.R. 141.11(b) (NPDW -- MCL) and 40 C.F.R. 264.94(a)(2) (RCRA).)

(3) Lead

(a) CERCLA Hazardous Substance: Yes.
(b) Ground Water RI Analyte: Yes.
(c) Surface Water RI Analyte: Yes.
(d) Ground Water IRA Standard: 50 ug/l.
(Source: 40 C.F.R. 141.11(b) (NPDW -- MCL) and 40 C.F.R. 264.94(a)(2) (RCRA).)
(e) Surface WAter IRA Standard: 50 ug/l.
(Source: 40 C.F.R. 141.11(b) (NPDW -- MCL) and 40 C.F.R. 264.94(a)(2) (RCRA).)

The above standards are not applicable to this IRA. MCLs apply to public water systems and the standards of Part 264.94 apply to waste management areas. While the 1727 sump is not a public water system or waste management area, these standards are considered relevant and appropriate to apply.

(4) IMPA

There are no promulgated standards concerning IMPA. The Army has determined that, in the absence of any such standard which could be either applicable or

relevant and appropriate, it will apply a health-based standard based upon the best available current data. The selected IMPA standard, considered relevant and appropriate to apply to this IRA, is 16.8 ppm.

8.3.2 LOCATION-SPECIFIC ARARs

Location-specific requirements set restrictions on activities depending on the characteristics of the site or the immediate environment. These requirements function like action-specific requirements. Alternative remedial actions may be restricted or precluded depending on the location or characteristics of the site and the requirements that apply to it.

With respect to this interim action, the provisions of 40 C.F.R., 141.5 (siting requirements for public water systems) are relevant and appropriate. The foregoing regulation does not constitute an "applicable" location-specific ARAR in this context. The 1727 Sump interim treatment system does not constitute a public water system and no one is drinking or is to drink water to be treated by this system. Thus, the regulatory jurisdiction otherwise associated with the Safe Drinking Water Act and the National Primary Drinking Water Regulations does not arise. In the factual context of this IRA, the jurisdictional prerequisites of these requirements are not met. Thus, the identified regulation is not applicable here.

Nevertheless, Section 141.5 does address location-specific problems or situations sufficiently similar to those encountered at the RMA CERCLA site that use of this regulation is well-suited to the site and accordingly it will be treated as "relevant and appropriate." A requirement that is "relevant and appropriate" must be complied with to the same degree as if applicable. However, there is more discretion in this determination; it is possible for only part of a requirement to be considered relevant

and appropriate; the rest being dismissed if judged not to be relevant and appropriate in a given case.

Accordingly, the 1727 Sump interim treatment system will be located to conform to the substantive siting provisions of 40 C.F.R. 141.5 as follows:

(i) The system will not be located where there is a significant risk from earthquakes, floods, fires or other disasters which could cause a breakdown of these improvements; and

(ii) The system will not be located within the floodplain of a 100-year flood.

It should be noted that Paragraphs 23.2(e) and (f) of the proposed Consent Decree provide that:

(e) Wildlife habitat(s) shall be preserved and managed as necessary to protect endangered species of wildlife to the extent required by the Endangered Species Act, 16 U.S.C. 1531 et seq., migratory birds to the extent required by the Migratory Bird Treaty Act, 16 U.S.C. 703 et seq., and bald eagles to the extent required by the Bald Eagle Protection Act, 16 U.S.C. 668 et seq.

(f) Other than as may be necessary in connection with a Response Action or as necessary to construct or operate a Response Action Structure, there shall be no change permitted in the geophysical characteristics of RMA that has a significant effect on the natural drainage at RMA for floodplain management, recharge of groundwater, operation and maintenance of Response Action Structures, and protection of wildlife habitat(s).

While these provisions are not ARARs, they obviously must be complied with for purposes of this IRA. Based on where the 1727 Sump interim treatment system is and will continue to be located, as well as when the IRA will take place, the Army believes that this IRA will have no adverse impact on any endangered species or migratory birds, or on the protection of wildlife habitats. (Reference letter from Department of the Interior dated June 6, 1988 to the Program Manager's Office in which the Fish and Wildlife Service does not indicate adverse impacts on endangered

species or migratory birds or on the protection of wildlife habitats.)

Moreover, the Army has separately determined that this IRA will not change the physical characteristic of RMA in a manner that will have significant effect on the natural drainage of RMA for floodplain management, recharge of groundwater and the operation and maintenance of Response Action structures.

8.3.3 PERFORMANCE, DESIGN OR OTHER ACTION-SPECIFIC ARARs

8.3.3.1 DESCRIPTION

Performance, design or other action-specific requirements set controls or restrictions on particular kinds of activities related to the management of hazardous substances, pollutants, or contaminants. These action-specific requirements may specify particular performance levels, actions or technologies, as well as specific levels (or a methodology for setting specific levels) for discharged or residual chemicals.

8.3.3.2 OPERATION OF INTERIM TREATMENT SYSTEM

8.3.3.2.1 TREATMENT OF LIQUID IN 1727 SUMP

No action-specific ARARs were identified that are applicable, or relevant and appropriate to this IRA.

8.3.3.2.2 AIR EMISSIONS

On the remote possibility that there may be air emissions during the course of the operation of the 1727 Sump interim treatment system, the Army has reviewed all potential ambient or chemical-specific air emission requirements. As a result of this review, the Army found that there are, at present, no national or State ambient air quality standards currently applicable or relevant

and appropriate to any of the volatile or semi-volatile chemicals in the liquid found in the 1727 Sump.

The NESHAPS standards contained in 40 C.F.R. Part 61 were considered as potential ARARs and determined to be neither applicable nor relevant and appropriate. These regulations apply to stationary sources of these pollutants and are therefore not considered applicable to this IRA. These regulations were not considered relevant and appropriate to apply to this IRA because they were developed for emissions from manufacturing processes which are significantly dissimilar from the short term construction activity which will take place during this IRA. The Army recognizes that when the actual system is designed it may include equipment which is somewhat similar to a stationary source and if the design does include such equipment, the NESHAPS standards will be reviewed again to determine whether they should be applied to the operations of this IRA.

Of course, in the context of this IRA there is only a very remote chance of any release of volatiles or semi-volatiles and, even if such a release did occur, it would only be intermittent and of very brief duration (because the activity that produced the release would be stopped and modified appropriately if a significant air emission was detected by the contractor's air monitoring specialist). The Health and Safety Plan developed for this IRA will describe specific monitoring plans and work modification procedures.

8.3.3.2.3 WORKER PROTECTION

With respect to the workers directly participating in this IRA, the worker protection requirements of Section 126 of the Superfund Amendments and Reauthorization Act of 1986 shall be met through compliance with the OSHA interim final rule that

appears in 51 Fed. Reg. 45654 (1986).[2]

8.3.3.2.4 OPERATION OF 1727 SUMP TREATMENT SUMP

The following performance, design or action-specific State ARAR is applicable to this portion of the IRA and is more stringent than any applicable or relevant and appropriate Federal standard, requirement, criterion or limitations:

(iv) Colorado Noise Abatement Statute, C.R.S. Section 25-12-103:

(1) Every activity to which this article is applicable shall be conducted in a manner so that any noise produced is not objectionable due to intermittence, beat frequency, or shrillness. Sound levels of noise radiating from a property line at a distance of twenty-five feet or more therefrom in excess of the db(A) established for the following time periods and zones shall constitute prima facie evidence that such noise is a public nuisance:

Zone	7:00 a.m. to next 7:00 p.m.	7:00 p.m. to next 7:00 a.m.
Residential	55 db(A)	50 db(A)
Commercial	60 db(A)	55 db(A)
Light industrial	70 db(A)	65 db(A)
Industrial	80 db(A)	75 db(A)

(2) In the hours between 7:00 a.m. and the next 7:00 p.m., the noise levels permitted in subsection (1) of this section may be increased by ten db(A) for a period of not to exceed fifteen minutes in any one-hour period.

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[2] Although OSHA proposed a permanent final rule on August 10, 1987, 52 Fed. Reg. 29620, the comment period on this rule did not close until October 5, 1987.

It should be noted that, pursuant to CERCLA Section 301(f), 42 U.S.C. 9651(f), the NCP is to be amended by December 11, 1988 to provide procedures for the protection of the health and safety of employees involved in response actions.

(3) Periodic, impulsive, or shrill noises shall be considered a public nuisance when such noises are at a sound level of five db(A) less than those listed in subsection (1) of this section.

* * *

(5) Construction projects shall be subject to the maximum permissible noise levels specified for industrial zones for the period within which construction is to be completed pursuant to any applicable construction permit issued by proper authority or, if no time limitation is imposed, for a reasonable period of time for completion of project.

* * *

(8) For the purposes of this article, measurements with sound level meters shall be made when the wind velocity at the time and place of such measurement is not more than five mile per hour.

(9) In all sound level measurements, consideration shall be given to the effect of the ambient noise level created by the encompassing noise of the environment from all sources at the time and place of such sound level measurement.

* * *

The noise levels pertinent for construction activity provided in C.R.S. Section 25-12-103 will be attained in accordance with this applicable Colorado statute.

8.3.3.2.5 EXCESS MATERIALS

For screening excess materials, including the removed sediments, the Army will follow the procedures described in the EPA Region VIII memorandum of June 12, 1985. Material determined to be potentially contaminated will be drummed, tested and managed as described in that document. If material is determined to be contaminated it will require special management. The Army believes that the following regulations are applicable in the context of managing excess contaminated material determined to be

hazardous waste which may be generated during this IRA:

40 CFR 260.10:	Definitions
40 CFR 261.2 - 261.4:	Definitions and Exclusions
40 CFR 261.10:	Identifying the characteristics of hazardous waste
40 CFR 261.20 - 261.24:	Characteristics of hazardous wastes
40 CFR 261.31 - 261.33:	Lists of hazardous wastes (if a waste identified is a concern of this IRA).
40 CFR Part 262:	The substantive requirements which apply to generators will be followed.
40 CFR Part 263:	If the Army acts as a transporter it will comply with the substantive requirements of this part.
40 CFR Part 264:	If the Army places hazardous waste in a treatment, storage or disposal facility it will comply with the substantive requirements of this part. Generally, substantive requirements are contained in Subparts B, C, D, E, F, G, I, J, K, L, M, N and O. It is unlikely all of these Subparts will apply. Which subpart(s) are applicable will be determined based upon the activity or treatment being conducted.

The specific provisions applicable to hazardous waste handling will be determined by the particular facts of the interim response action, for example use of containers or use of a waste pile. The list above is not intended to limit the potential substantive requirements which may be applicable, but rather attempts to identify those ARARs most likely to apply to any excess contaminated material which is determined to be hazardous waste.

9.0 SCHEDULE

The Draft Implementation Document will be completed 28 February 1989. This milestone has been developed based upon the Final Assessment Document and the assumption that no dispute resolution will occur. Further schedule items for this IRA will be identified in the Draft Implementation Document. If events occur which necessitate a schedule change or extension, the change will be incorporated in accordance with the discussion in Section XVIII of the RI/FS Process Document.

10.0 CONSISTENCY WITH THE FINAL REMEDIAL ACTION

The ongoing emergency response was selected from the treatability study conducted for the interim response action. It has proven itself to effectively treat the wastewater to selected standards. The emergency response treatment system has treated arsenic to a level below 50 ug/l, lead to a level below 50 u g/l, cadmium to a level below 10 ug/l and IMPA to a level of below 16.8 ppm. It significantly reduces the toxicity of the wastewater and prevents discharge by overflow of contaminated wastewater from the sump. It was decided that the ongoing emergency action would satisfy the IRA. By treatment to selected levels of this contaminated wastewater, the performance of the IRA will be consistent with any final remedial actions selected for Sump 1727.

11.0 REFERENCES

RIC 88244R01
Environmental Sciences and Engineering, Inc. July 1987. Draft Final Treatability Study, Sump 1727 Interim Response Action Assessment. Prepared for U.S. Army Program Manager's Office for Rocky Mountain Arsenal.

RIC 88243R01
Environmental Sciences and Engineering, Inc. July 1988. Final Report, Sump 1727, Interim Response Action Alternatives Assessment, Version 3.2. Prepared for U.S. Army Program Manager's Office for Rocky Mountain Arsenal.

APPENDIX - COMMENTS AND RESPONSES

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION VIII
999 18th STREET - SUITE 500
DENVER, COLORADO 80202-2405

Ref: 8HWM-SR

Mr. Donald L. Campbell
Deputy Program Manager
Office of the Program Manager
Rocky Mountain Arsenal
ATTN: AMXRM-TO
Commerce City, Colorado 80022-2180

SEP 28 1988

Re: Rocky Mountain Arsenal (RMA),
Proposed Decision Document
for the Interim Response Action for
Building 1727 Sump, August, 1988.

Dear Mr. Campbell:

We have reviewed the above referenced report and have the enclosed comments. Please contact me at (303) 293-1528, if there are questions on this matter.

Sincerely,

Connally Mears

Connally Mears
EPA Coordinator
for Rocky Mountain Arsenal Cleanup

Enclosure

cc: Thomas P. Looby, CDH
David Shelton, CDH
Patricia Bohm, CAGO
Lt. Col. Scott Isaacson
Chris Hahn, Shell
R. D. Lundahl, Shell
David Anderson, DOJ

COMMENTS ON THE PROPOSED DECISION DOCUMENT FOR
THE INTERIM RESPONSE ACTION FOR BUILDING 1727 SUMP
AT THE ROCKY MOUNTAIN ARSENAL
AUGUST, 1988

1. Section 9.1(g) of the Consent Decree states this IRA consists of remediating contaminated liquid in the Building 1727 Sump to mitigate any remaining threat of release of liquids from this sump. A description of the project is stated on page 1, the objectives of the IRA is stated on page 8, and the purpose of the IRA is stated on page 23.

   a. The language in the three references on pages 1, 8, and 23 in the document are not entirely consistent with the language in the proposed Consent Decree.
   b. Since the sludge was pumped out of Sump 1727 (page 18, paragraph 1) are there other additional sources of pollution? Do the sources of inflow (page 6, paragraph 2) produce a threat of contamination? If there are no other sources of pollution, has the remediation been accomplished per Section 9.1(g) because there is no longer contaminated liquid to remediate?
   c. The five criteria listed on page 8 are not entirely consistent with Section 9.6 of the Consent Decree.

2. On page 10, top, it is stated that AA/GAC will remove As, F IMPA, and other organics. Clarify which other organics, and that cadmium and lead would be removed.

3. On page 23, second paragraph, a list of chemical-specific ARARs is presented as relevant and appropriate. We would like the basis stated that they are not applicable.

4. The discussion on page 30, concerning "excess materials" should clarify that it refers to the excavated sludges.

5. Pages 14, 18 and 23, The chemical-specific ARARs do not include IMPA, even though it exists in the sump liquid. In regard to the Army's response to EPA's comment 2 on ARARs, some level of discharge, cleanup, control, etc., will have to be designated and met even for substances which don't have ARARs.

Therefore, since no promulgated standard exists for IMPA, any existing risk-based level must be identified and met, to the maximum extent practicable, during this interim action. The Army has proposed such a risk-based level ("Recommended Interim Criteria for Three Environmental Polluting Compounds of RMA," October 1984, USAMBRDL, Fort Detrick, Md.). Our contractor review of that document's methods and calculations has found them correct for IMPA. However, a quick survey should be performed to identify and incorporate any more recent information. The Draft

Final Decision document should identify the associated 16.8 ppm level as a selected requirement, confirm that it will be met, and clarify that the interim action will be protective of human health and the environment for all contaminants.

Further, the document needs to clarify that IMPA will be, and has been, treated (pages 14, 18, etc.) by the selected alternative.

6. Page 10, first and second complete paragraphs, the reduction of mobility, toxicity, and volume should be related to both the contaminants and the wastewater.

7. Page 10, Section 4.2, the use of an evaporation pond would transfer the contaminants to the air and would not result in a reduction of contaminant mobility, toxicity, or volume. Please strengthen the discussion to point out that a reduction of only wastewater volume is not consistent with SARA MTV requirements.

8. Page 14, the identification and remediation of the sources may also be necessary. This matter should be further evaluated following analysis of the contaminants in both the removed sludges and the current sump liquid.

9. Page 14, prior to the selection of an alternative, the integrity of the existing sump will have been determined - this should be stated (see also page 18, top paragraph, and page 6, second paragraph, last sentence).

10. Page 15, more details on the coordination with the organizations and the State should be provided, such as the respective parties involvement in the IRA process, including ARAR selection, and related Court filing dates (see page 20 and page 22, second paragraph).

11. Page 18, first paragraph, inclusion of mention of the parties oral approvals of the expedited sediment removal from the sump is recommended.

12. Page 18, second paragraph, last sentence, add the word "are".

13. Pages 20 and 21, add a reference to the ongoing emergency treatment of the sump liquids.

14. Page 22, Section 8.1, first paragraph, the IRAs must also, to the maximum extent practicable, attain risk-based levels when no ARAR exists, and must always be protective of human health and the environment.

15. Page 22, third paragraph, reference should be made to the later ARARs dialogue between the parties (for example, EPA's June 13, 1988 letter and the Army's response).

16. Pages 18 and 23, consistent use of units (i.e., mg/l or ug/l) is preferred.

17. Page 27, Section 8.3.3.2.2, first paragraph, last sentence, it is stated that there are no air quality standards which would serve as ARARs for volatile or semi-volatile chemicals in the groundwater in the immediate vicinity of the 1727 sump. The sump liquid should be so considered instead.

18. Page 28, continued paragraph at top of page, reference should be made to the Health and Safety air monitoring plan in regard to work stoppage due to release of volatiles or semi-volatiles during remediation.

19. Page 32, mention should be made that further schedule items for this IRA will be provided in the Implementation Document, as provided in Section 9.13 of the proposed Consent Decree.

20. Page 33, specify the chemicals of concern and the standards which are being met by the emergency response treatment system, and state the third sentence in the present tense.

21. Page 33, reword the last sentence; "thereby" is not the appropriate word.

22. Sections 4.0 and 6.0 should address the criteria in Section 9.6 of the proposed Consent Decree.

RESPONSES TO COMMENTS SUBMITTED BY THE U.S. ENVIRONMENTAL PROTECTION AGENCY, REGION VIII ON THE PROPOSED DECISION DOCUMENT FOR THE INTERIM RESPONSE ACTION FOR BUILDING 1727 SUMP AT THE ROCKY MOUNTAIN ARSENAL

Comment 1: Section 9.1(g) of the Consent Decree states that this IRA consists of remediating contaminated liquid in the Building 1727 Sump to mitigate any remaining threat of release of liquids from this sump. A description of the project is stated on page 1, the objectives on page 8, and the purpose of the IRA on page 23.

a. The language in the three references on pages 1, 8 and 23 are not entirely consistent with the language in the proposed Consent Decree.

b. Since the sludge was pumped out of the sump are there any additional sources of pollution? Do the sources of inflow produce a threat of contamination? If there are no other sources of pollution, has the remediation been accomplished per Section 9.1(g) because there is no longer contaminated liquid to remediate?

c. The five criteria listed on page 8 are not entirely consistent with Section 9.6 of the Consent Decree.

Response: 1a. While the language cited does not specifically recite the language in the proposed Consent Decree, the Army believes that the descriptions provided in the proposed decision document are not inconsistent with the language in the Consent Decree.

1b. The Army believes that the sediment removed from the sump was the most significant source of contamination found in the liquids. The Army anticipates that the completed removal of the sediment will not result in total removal of contamination which may enter the liquid which accumulates in the sump. Future monitoring will provide more data concerning other possible sources of contamination.

1c. The Army believes that the objectives listed on page 8 of the document are consistent with the criteria for evaluation of alternatives listed in Section 9.6 of the proposed Consent Decree.

Comment 2: On page 10 it is stated that AA/GAC will remove As, F, IMPA and other organics. Clarify which other organics and that cadmium and lead would be removed.

Response: The document has been revised in response to this comment. Other organics are not currently appearing in the influent to the treatment system. The language concerning other organics in the document is meant to note that, if future influent is found to contain some amounts of other organics, the system is expected to treat such organics.

Comment 3: On page 23 a list of chemical-specific ARARs is presented as relevant and appropriate. The basis should be stated as to their nonapplicability.

Response: The document has been revised in response to this comment.

Comment 4: The discussion on page 30 concerning excess materials should clarify that it refers to excavated sludges.

Response: The document has been revised in response to this comment.

Comment 5: The chemical-specific ARARs do not include IMPA. In regard to the Army's response to EPA comment 2 on ARARs, some level of discharge, cleanup, control, etc., will have to be designated and met even for substances which don't have ARARs. Since no promulgated standard exists for IMPA, any existing risk-based level must be identified and met, to the maximum extent practicable. The Army's proposed risk-based level has been reviewed by our contractor and the methods and calculations in the document found correct for IMPA. A quick survey should be performed to identify and incorporate any more recent information. The Draft Final Decision Document should identify the associated 16.8 ppm level as a selected requirement, confirm that it will be met, and clarify that the interim action will be protective of human health and the environment for all contaminants. The document should also clarify that IMPA will be, and had been, treated by the selected alternative.

Response: The document has been revised in response to this comment. The Army appreciates EPA's assistance in developing an appropriate approach to delineate treatment levels for compounds for which there are no promulgated ARARs.

Comment 6: On page 10 the reduction of mobility, toxicity and volume should be related to both the contaminants and the wastewater.

Response: The document has been revised in response to this comment.

Comment 7: On page 10, Section 4.2, the use of an evaporation pond would transfer contaminants to the air and not result in a reduction of contaminant mobility, toxicity or volume. Please strengthen this discussion to point out that wastewater volume reduction only is not consistent with SARA MTV requirements.

Response: The document has been revised in response to this comment.

Comment 8: Page 14, the identification and remediation of the sources may also be necessary. This matter should be further

evaluated following analysis of the contaminants in the removed sludges and the current sump liquid.

Response: The Army agrees with the comment and will further evaluate this matter as data becomes available.

Comment 9: Page 14, prior to selection of an alternative the integrity of the existing sump will have been determined. This should be stated.

Response: The document has been revised in response to this comment.

Comment 10: Page 15, more details on the coordination with the organizations and the State should be provided, such as the respective parties involvement in the IRA process, including ARAR selection and related Court filing dates.

Response: The document has been revised in response to this comment.

Comment 11: Page 18, recommend the Army include mention of the parties oral approval of the expedited sediment removal from the sump.

Response: The document has been revised in response to this comment.

Comment 12: Page 18, add "are" to last sentence of second paragraph.

Response: The addition has been made.

Comment 13: Pages 20 and 21, add a reference to the ongoing emergency treatment of sump liquids.

Response: The reference has been added.

Comment 14: Page 22, Section 8.1, the IRAs must also, to the maximum extent practicable, attain risk-based levels when no ARAR exists, and must always be protective of human health and the environment.

Response: In following the guidance of CERCLA Section 121(d)(1) and the EPA Superfund Public Health Evaluation Manual, the Army intends to apply appropriate risk-based levels for specific contaminants of concern in interim response actions conducted at RMA where no ARAR exists for the contaminant.

Comment 15: Page 22, reference should be made to the later ARARs dialogue between the parties (for example, EPA's June 13, 1988 letter and the Army response).

Response: The document has been revised in response to this comment.

Comment 16: Pages 18 and 23 use different units of measurement.

Response: The document has been revised in response to this comment.

Comment 17: Page 27, Section 8.3.3.2.2, states that there are no air quality standards which would serve as ARARs for volatile and semi-volatile chemicals in the groundwater in the immediate vicinity of the 1727 sump. The sump liquid should be considered instead.

Response: EPA is correct. The document has been revised.

Comment 18: Page 28, reference should be made to the Health and Safety air monitoring plan in regard to release of volatiles or semi-volatiles during remediation.

Response: The document has been revised in response to this comment.

Comment 19: Page 32, mention should be made that further schedule items for this IRA will be provided in the Implementation Document, as provided in Section 9.13 of the proposed Consent Decree.

Response: The document has been revised in response to this comment.

Comment 20: Page 33, specify the chemicals of concern and the standards which are being met by the emergency response treatment system and state the third sentence in the present tense.

Response: The document has been revised in response to this comment.

Comment 21: Page 33, reword last sentence; "thereby" is not the appropriate word.

Response: The sentence has been reworded.

Comment 22: Sections 4.0 and 6.0 should address the criteria in Section 9.6 of the proposed Consent Decree.

Response: The document has been revised in response to this comment.

STATE OF COLORADO

COLORADO DEPARTMENT OF HEALTH

4210 East 11th Avenue
Denver, Colorado 80220
Phone (303) 320-8333

Roy Romer
Governor

Thomas M. Vernon, M.D.
Executive Director

September 28, 1988

Mr. Donald Campbell
Deputy Program Manager
Office of the Program Manager
for the Rocky Mountain Arsenal
AMXRM-PM, Building 111
Commerce City, CO 80022-2180

Re: Proposed Decision Document for the Interim Action for Building 1727 Sump

Dear Mr. Campbell:

The State has two principal concerns with the above referenced document. As noted in the State's comments to the 1727 sump alternatives assessment, the sump may be a Colorado Hazardous Waste Management Act ("CHWMA")/Resource Conservation and Recovery Act ("RCRA") surface impoundment because of the high pH and the presence of EP toxic metals. Thus, the sump may need to be closed pursuant to CHWMA/RCRA. The Army must therefore adequately identify the contents of the sump prior to implementation of this interim action to determine if an application for closure must be submitted to the Colorado Department of Health.

The State's second concern is that the Army's proposed alternative for this interim action will not meet the stated objective of controlling "any remaining threat of contaminated liquid being released to the environment." Pursuant to the Army's proposed alternative, contaminated liquids will be stored in the sump prior to being treated and therefore the potential for exfiltration or infiltration will continue. The 1727 sump must be retrofitted or a new sump must be constructed to eliminate the potential for releasing contaminated water or hazardous waste to the environment and to meet the objective of this interim action.

The State's other concerns include:

1. Discharge of Treated Water to the Sanitary Sewer.

The current NPDES permit does not allow the discharge of any hazardous wastes or liquid wastes to the sanitary sewage treatment plant from the 1727 sump. If the Army proposes to

continue using the sanitary sewage treatment system for treatment of liquids generated by this interim action, the NPDES permit must be modified and the public must be afforded the opportunity to comment on the proposed modification. Furthermore, the treatment plant itself may need to be upgraded to adequately treat the substantial increased volume and distinct composition of the interim action liquids prior to discharge to First Creek.

2. Effluent Discharge Limits.

The proposed decision document states that the AA/GAC system will achieve effluent levels for arsenic, cadmium, lead, and fluoride to MCLs. The proposed decision document fails to identify the methodology and frequency of the analysis of the discharge. A complete analysis of all liquids must be conducted immediately prior to discharge to the sanitary sewage treatment system.

3. Sediments.

The State has recently been informed that the 1727 sump sediment removal generated approximately 250 - 55 gallon drums of potential hazardous waste. The Army must conduct a complete analysis of the sludges pursuant to CHWMA/RCRA Part 261 and provide all results to the State. The State will then determine whether the drums must be disposed as a hazardous waste in a CHWMA/RCRA permitted disposal facility.

4. ARARs. Since the 1727 sump may be a CHWMA/RCRA regulated surface impoundment, an ARARs determination may not be necessary or appropriate. However, until the State has sufficient information to determine whether or not the sump is regulated pursuant to CHWMA two pertinent ARARs comments follow.

a. Pursuant to your September 14, 1988 letter to Jeff Edson and other documents referenced in that letter, the Army is proposing to unilaterally establish a no observable health effect level for IMPA of 16.8 ppm. In the absence of any human toxicological data and any other promulgated regulatory criteria, standard or limitation, it is inappropriate to establish any "safe level" for unique RMA contaminants. Therefore, the State objects to the proposed "safe level" for IMPA, but concurs that IMPA must be treated to the minimum

detection limit using best available control technologies.

b. The proposed decision document states that "there are, at present, no national or State ambient air quality standards currently applicable or relevant and appropriate to any of the volatile or semi-volatile chemicals in the groundwater found in the immediate vicinity of the 1727 Sump." Since the source of the contamination in the sump has not been identified, it is inappropriate to state that groundwater contamination constituents should be the basis for the ARAR identification.

If you have any questions, please call Jeff Edson with this Division.

Sincerely yours,

David C. Shelton
Director
Hazardous Materials and
Waste Management Division

DCS/me

pc: Michael R. Hope, AGO
David L. Anderson, DOJ
Connally Mears, EPA
Mike Gaydosh, EPA
Chris Hahn, Shell Oil
Edward J. McGrath, HRO
Tony Truschel, GeoTrans

CAMPBEL5.LTR

RESPONSES TO COMMENTS SUBMITTED BY THE STATE OF COLORADO CONCERNING THE PROPOSED DECISION DOCUMENT FOR THE INTERIM RESPONSE ACTION FOR BUILDING 1727 SUMP AT ROCKY MOUNTAIN ARSENAL

The State identified two principal concerns in their letter of September 28, 1988 and several other concerns. These comments are separated similarly to the manner separated by the State.

Principal Concerns

Comment 1: The sump may be a Colorado Hazardous Waste Management Act/Resource Conservation and Recovery Act surface impoundment because of the high pH and presence of EP toxic metals. The sump may need to be closed pursuant to CHWMA/RCRA. The Army must adequately identify the contents of the sump prior to closure to determine if an application for closure must be submitted to the Colorado Department of Health.

Response: The relationship between RCRA and CERCLA is an area of disagreement between Colorado and the United States. The Army intends to complete this interim action pursuant to CERCLA and believes that no application to the State is required in order to proceed with the planned interim response action.

Comment 2: The State is concerned that the proposed interim response action will not meet the stated objective of controlling "any remaining threat of contaminated liquid being released to the environment." Contaminated liquids will be stored in the sump prior to treatment and the potential for exfiltration and infiltration will continue. The 1727 sump must be retrofitted or a new sump constructed to eliminate the potential for releasing contaminated water or hazardous waste to the environment and to meet the objective of this interim action.

Response: The Army disagrees with the State's evaluation. The Army has no reason to believe that the sump presents a threat to release contaminants to the environment, except from overflow, and can safely contain liquid prior to treatment by the system contemplated by this interim response action. Treatment of the liquid to the levels proposed will attain the objective of controlling any remaining threat of contaminated liquid being released to the environment.

Other Concerns

Comment 1: Discharge of treated water to the sanitary sewer. The discharge of hazardous wastes or liquid wastes to the sanitary sewer is not permitted by the NPDES permit. If the Army is going to continue using the sanitary sewer treatment system for treatment of liquids generated by this interim response action the NPDES permit must be modified and the public afforded an opportunity to comment on the proposed modification. Furthermore, the sewage treatment plant may need to be upgraded

to adequately treat the substantial increased volume and distinct composition of liquids from the interim action prior to discharge to First Creek.

Response: The Army believes no NPDES permit modification is necessary for this interim action. The treated water does not constitute a hazardous waste or any threat to the sewage treatment plant or sanitary sewer. The State apparently fails to distinguish between treated and untreated discharges. For the low flow rate anticipated by this interim response action treatment and because of the treatment levels which will be attained, there is no need to modify the sewage treatment plant. In fact, the Army believes that this treated water will meet drinking water standards and be of substantially higher quality than the routine influent received by the sewage treatment plant.

Comment 2: Effluent discharge limits. The proposed decision document fails to identify the methodology and frequency of analysis of the discharge. A complete analysis of all liquids must be conducted immediately prior to discharge to the Sanitary Sewage Treatment System.

Response: Treated water is monitored to identify any breakthrough or failure in the treatment system. The final proposed monitoring plan for this interim action will be presented in greater detail in the Implementation Document.

Comment 3: The State has recently been informed that the 1727 sump sediment removal generated approximately 250 - 55 gallon drums of potential hazardous waste. The Army must conduct a complete analysis of the sludges pursuant to CHWMA/RCRA and provide all results to the State. The State will then determine whether the drums must be disposed of as hazardous waste in a CHWMA/RCRA permitted disposal facility.

Response: The decision document has been modified to clearly, indicate that these sediments will be managed in substantive compliance with RCRA if they are determined to be, upon analysis, hazardous waste.

Comment 4a: The Army is proposing to unilaterally establish a no observable health effect level for IMPA of 16.8 ppm. In the absence of human toxicological data and any other promulgated regulatory criteria, standard or limitation, it is inappropriate to establish any "safe level" for unique RMA contaminants. Therefore, the State objects to the proposed level for IMPA, but concurs that IMPA must be treated to the minimum detection limits using the best available control technology.

Response: The State is misinterpreting the Army's approach concerning IMPA. While there is no standard, requirement, criteria, or limitation under Federal or State law which is legally applicable or relevant and appropriate to apply

protecting human health and the environment the Army will apply the recommended level for IMPA which was developed in this study to this interim action. In fact, the IMPA level anticipated in the effluent from this interim action is approximately an order of magnitude lower than the recommended level established by the available study. The Army believes this to be a technically sound approach. The State proposal to treat IMPA to minimum detection limits is overly simplistic and lacks any identifed technical basis. Detection limits may or may not have any rational relationship to the appropriate action level to apply to a particular compound and in some cases may be higher than the action level which is considered appropriate based upon available data.

Comment 4b: The proposed decision document states that there are no national or State ambient air quality standards currently applicable or relevant and appropriate to apply to any of the volatile or semi-volatile chemicals in the groundwater found in the vicinity of the 1727 sump. Since the source of the contamination in the sump has not been identified, it is inappropriate to state that groundwater contamination constituents should be the basis for ARAR identification.

Response: The decision document has been modified in response to this comment.

United States Department of the Interior
FISH AND WILDLIFE SERVICE
COLORADO FIELD OFFICE
730 SIMMS STREET
ROOM 292
GOLDEN, COLORADO 80401

IN REPLY REFER TO:

September 27, 1988

Office of Program Manager
Attn: Mr. Donald L. Campbell
Building 111, Rocky Mountain Arsenal
Commerce City, CO 80022

Dear Mr. Campbell:

We have reviewed the Proposed Decision Document for the Interim Response Action for Building 1727 Sump at Rocky Mountain Arsenal. The following comments are in addition to those provided Mr. Gary Briggs on June 6, 1988. In the May 1988 draft final report, Task 30 for Sump 1727, Interim Response Action, Alternative Assessment, Version 2.3, it escaped our attention the possibility that treated liquids from the Alternative 1 response action (the recommended and preferred alternative) could be released to surface waterways.

For this reason, we suggest that surface water IRA standards for cadmium and lead on pages 23 and 24 of the Proposed Decision Document may not afford adequate protection to aquatic life. The ambient water quality for cadmium (EPA, 1980 Ambient water quality criteria for cadmium. U.S.E.P.A. Rep. 440/5-80-025) and lead (EPA.1980 Ambient water quality criteria for lead 1984. U.S.E.P.A. Rep. 440/5-84-027) suggests criteria for the protection of aquatic life that are lower than that for the protection of human health. Therefore, we recommend the Army reconsider any discharge of treated liquids from Sump 1727 into surface waterways.

It is not clear how the standards previously referenced for protecting aquatic life may impact your decision making process on final response action addressing Sump 1727. However, we encourage your consideration of these standards to the extent they can be incorporated into your final plan.

Thank you for the opportunity to review the proposed decision document.

Sincerely,

LeRoy W. Carlson

LeRoy Carlson
Acting State Supervisor

cc: Bob Stewart, USDI
Tom Jackson, FWS/FWE,RO
Connally Mears, EPA
Doug Regan, ESE
Jean Tate, Ebasco
David Anderson, DOJ

Shell Oil Company

One Shell Plaza
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Houston, Texas 77210

September 28, 1988

Office of the Program Manager for Rocky Mountain Arsenal
ATTN: AMXRM-PM: Mr. Donald L. Campbell
Rocky Mountain Arsenal, Building 111
Commerce City, Colorado 80022-2180

Dear Mr. Campbell:

Shell Oil Company has no substantive comments on the proposed decision document for Building 1727 Sump IRA. Shell, however, rejects the Army analysis of ARARs, which selects MCLs as ARARs for groundwater, for the similar reasons as set forth in our comments on the proposed decision document for the Groundwater and Treatment System IRA North of Basin F.

Sincerely,

R. D. Lundahl
Manager Technical
Denver Site Project

RDL:ajg

Enclosure

cc: Office of the Program Manager for Rocky Mountain Arsenal
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Office of the Program Manager for Rocky Mountain Arsenal
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Commerce City, Colorado 80022-2180

cc: Mr. David L. Anderson
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